

In the Matter of )  
 )  
STATE OF NEW YORK )  
 ) WT Docket No. 06-18  
Request for Waiver of Section 90.545 )  
Regarding 700 MHz Public Safety System )  
Interference Protection for Co-Channel and )  
Adjacent-Channel Television Stations )

The State of New York (“State”) hereby submits the following Reply Comments and attached Supplemental Engineering Study in response to comments filed in response to the Commission’s *Public Notice*, DA 06-99, released January 26, 2006, regarding the State’s above-captioned Request for Waiver.<sup>1</sup>

Several parties, including one television broadcast station, filed comments in support of the Request for Waiver.<sup>2</sup> Two broadcast station licensees, WFUT-TV (“WFUT”) and Mountain Broadcasting Corporation (“WMBC”), filed comments that, at least in part, oppose the Request for Waiver. However, as indicated below, and in the attached Supplemental Engineering Study, neither present a valid basis for denial of the

<sup>2</sup> See Comments of Maranatha Broadcasting Company, Inc., Comments of APCO, Comments of Region 24 Regional Planning Committee, Comments of Region 39 700 MHz Regional Planning Committee, and Comments of Qualcomm Incorporated. See also Reply Comments of National Public Safety Telecommunications Council.

State's Request for Waiver. The Commission should proceed as expeditiously as possible to grant the Request and permit the State to proceed with deployment of its 700 MHz radio system in the Downstate New York area.

### WFUT-TV

WFUT-TV, Newark, New Jersey operates on channel 68, adjacent to channel 69, portions of which will be used by the State for mobile radio transmissions.<sup>3</sup> The State's initial study of the potential interference to reception of WFUT (based upon the licensed facilities on the Empire State Building) demonstrated that only 0.2% of the population in the WFUT service area would have a potential of receiving interference, and even that would be on an extremely brief, intermittent basis. Subsequently, the State submitted a Supplement showing an even smaller impact.<sup>4</sup>

WFUT's principal argument appears to be that the State's technical analysis used the parameters of the WFUT-TV primary license site on the Empire State Building site, which is no longer in operation, rather than the currently operating auxiliary transmitter site at 4 Times Square. The State was unaware at the time of its study that WFUT was no longer transmitting from the Empire State Building. However, to provide a more complete record, the State has now conducted a revised study based upon the WFUT auxiliary site, as well as the pending Construction Permit (CP) authorizing WFUT to

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<sup>3</sup> The State's operations will be pursuant to its *existing* state-wide license. WFUT and WMBC both suggest that the State should have filed its Request with a Form 601 and filing fee. However, since the State is not seeking a new license, or a modification of an existing license, a Form 601 is not appropriate. Indeed, FCC staff advised the State that the Universal Licensing System (ULS) could not accommodate a waiver request that does not require a new or modified license, and therefore recommended that the State submit its Request for Waiver directly to the Office of the Secretary in Washington, DC. The State further notes that, as a governmental entity, it is exempt from FCC filing fees.

<sup>4</sup> See Supplement, filed March 13, 2006.

return to the Empire State Building with modified parameters. *See* attached Supplemental Engineering Study.

The State's updated analysis for both 4 Times Square and the Empire State Building CP, demonstrates that *less than 0.1%* of the relevant population would be subject to potential interference. As discussed below, this analysis focuses on transportation corridors, in response to WFUT's argument that the State's initial mobile operations will be concentrated in those areas.

The State's initial mobile analysis was based upon a fully deployed system used by a large number of personnel from a wide variety of state and local public safety agencies (*i.e.*, police, fire, EMS) throughout the relevant counties. However, as noted in the Request for Waiver, the Metropolitan Transportation Authority Police Department (MTAPD) will be the first user of the network, and, along with a small number of State Police in Downstate New York, will be the principal user prior to February 17, 2009, when WFUT will be required to cease operations on channel 68.<sup>5</sup> Therefore, the State has conducted a modified analysis which assumes that actual use will be concentrated along transportation corridors. (primary and secondary roads, as well as railways –both defined in the 2000 Census Tiger Mapping data). However, to be consistent, the analysis also assumes fewer radios will actually be in use across the region. The initial analysis assumed that there could be as many as 300 units (25 per county) simultaneously transmitting on the tested frequency, a highly unlikely “worse-case” scenario even for a

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<sup>5</sup> The February 17, 2009, date had not been established at the time of the State's initial study, so it had made a worse-case assumption that the system would be fully deployed before WFUT relinquishes channel 68.

fully-deployed network.<sup>6</sup> The updated analysis assumes more limited (but still “worse case”) deployment prior to February 17, 2009, with as many as 120 simultaneous transmissions.

WFUT also argues that the State’s engineering analysis does not provide sufficient “transparency” to judge its accuracy. The State stands by its methodology, but provides additional details in the attached Supplemental Engineering Study regarding its methodology.

All of the State’s updated findings are well within the 2% *de minimis* standard that Commission has used in similar DTV-related contexts. WFUT argues that the 2% *de minimis* standard is not relevant, as it has only been applied in a broadcast-to-broadcast situation.<sup>7</sup> However, the Commission has made clear that application of this standard is intended to promote the DTV transition *and* the resulting “recovery of spectrum” for public safety and other services.<sup>8</sup> Therefore, application of the 2% *de minimis* standard as a general matter to allow immediate deployment of public safety and other services would be entirely consistent with Commission policy.<sup>9</sup> Of more immediate relevance, the *de minimis* standard provides *guidance* for the Commission’s consideration of the State’s Request for Waiver, which demonstrates a potential for interference that falls *well below* the *de minimis* standard.

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<sup>6</sup> See initial Engineering Study at 16. The text of the Request for Waiver, at 11, incorrectly stated that the “the Engineering Study provides data for up to 300 simultaneous mobile transmissions in each county...”.

<sup>7</sup> WFUT, at page 10, cites the Commission decision not to allow application of the 2% *de minimis* standard by digital LPTV stations, where a “no interference” standard of 0.5% was deemed more appropriate. Of course, here, the State’s analysis shows an impact on WFUT of even less than 0.5%.

<sup>8</sup> See, e.g., Service Rules for the 746-764-776-794 MHz Bands and Revisions to Part 27 of the Commission’s Rules, 16 FCC Rcd 21633, 21642 (2001), ¶14.

<sup>9</sup> See Comments of Qualcomm Incorporated.

The Commission has generally looked primarily to total potential viewing audiences in addressing broadcast interference issues (*e.g.*, in applying the 2% *de minimis* test). To provide an additional (and more realistic) illustration of the limited potential for actual interference, the State also provided calculations based upon published data of WFUT's off-air audience ratings. WFUT criticizes the fact that the State used data from the 2005 *TV & Cable Factbook*, even though that was the most current, publicly available data at the time the State filed the Request (in 2005).<sup>10</sup> While the subsequently published 2006 edition shows an unusually large (and unexplained) increase in the WFUT audience, the data still supports the original claim that there will be an extremely small impact on WFUT viewers. Assuming that WFUT now has a non-cable average weekly circulation of 129,112 (rather 46,105 as reported in the 2005), there will still only be 127 impacted households based upon the revised study showing an impact on only 0.098% of the population.<sup>11</sup> Moreover, those impacted households would not lose the ability to view WFUT. Rather, they would be subject to the possibility of rare and momentary interference to analog reception during the brief remaining period before the end of the DTV transition (February 17, 2009).

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<sup>10</sup> WFUT also attempts to exploit a typographic error on page 12 of the Request for Waiver, which incorrectly indicated a percentage of 0.02% rather than 0.2%. However, the calculation in the Request for Waiver, showing a potential impact on 96 households, was clearly based upon the correct percentage (0.2%) of the data in question.

<sup>11</sup> WFUT suggests that the State has confused "population" with "households." However, the population percentage in the technical study can be applied to households, based on the assumption that population is evenly distributed among households. Thus, if x% of the population is impacted based upon engineering studies, presumably that reflects approximately x% of households.

Mountain Broadcasting Corporation (WMBC)

Mountain Broadcasting Corporation (“WMBC”) operates on channel 63, adjacent to channel 64, portions of which will be used by the State for fixed base station transmissions. WMBC explains in its comments that the State’s technical analysis of potential interference was based upon WMBC’s now-expired construction permit parameters, not the actual operating parameters of the current licensed facility. The State chose the construction permit parameters with the goal of showing a worse case analysis and focusing on where WMBC would presumably be operating at the time the State initiates operations in the region. However, the State has now conducted a new analysis based upon the current WMBC operating facility.

The revised analysis for WMBC indicates that only 0.21% of population in the service area will be subject to potential interference. Furthermore, closer review indicates that a single State transmitter site (ID #72) in the Bronx is the source of the theoretical interference for more than half of the potentially affected population. Without that site, the percentage of population impacted falls to 0.1%. Moreover, while the theoretical interference is within the WMBC Grade B contour, the State questions whether WMBC can actually be received in the relevant area, as the Manhattan skyline falls between this area and the WMBC transmitter site, likely creating a shadow effect.

Therefore, the State is prepared to accept a condition to its waiver that it not transmit on 700 MHz channels from site #72 without first taking field measurements satisfactory to WMBC to determine whether WMBC can be viewed off-air in the area surrounding the site. If reception of WMBC is possible, the State will not initiate 700 MHz band service from site #72 prior to February 18, 2009, absent the consent of

WMBC (*e.g.*, upon demonstration of transmitter filtering or other interference mitigation).

WMBC complains in its comments that the State bases its study on far more sites than were at issue in prior precedents, that the study is sophisticated and “not easily verifiable,” and that the State has not submitted an application specifying particular sites. First, the sheer number of fixed sites is irrelevant, so long as the engineering analysis demonstrates that no significant interference will occur. Second, the analysis submitted by the State uses standard engineering methodology and Commission-approved procedures. To the extent there is complexity, that is a result of the efforts by the State to assume worse case scenarios and to provide a comprehensive analysis of potential interference. The State should not be penalized for the comprehensive nature of its analysis.

Third, the State will be operating pursuant to its existing state-wide license authorizing fixed stations anywhere within the state. Specific sites are not subject to separate licenses. *See* 47 C.F.R. §90.529. The sites studied are based on the current system design. While design changes are possible, significant changes are unlikely prior to February 17, 2009, when WMBC must cease operations on channel 63. However, the State is prepared to notify WMBC of any changes to the plan that could possibly increase the potential for interference (*i.e.*, not sites that are clearly outside of the WMBC viewing area) and, upon request, to conduct a technical analysis of the proposed site to determine if in fact it would increase the potential for actual interference.

Finally, the State takes exception to the suggestion by WMBC that not granting the Request for Waiver would merely be an “inconvenience” for the State, pending completion of the DTV transition on February 17, 2009.<sup>12</sup> This is hardly a matter of “convenience.” The safety of life and property is at issue. Delaying deployment of the State’s radio network will force public safety agencies in New York to continue reliance on an inadequate radio system and potentially endanger the safety of first responders and the public they serve.

#### CONCLUSION

For the reasons set forth above and elsewhere in the record of this proceeding, the Commission should proceed expeditiously to grant the State’s request so it can deploy critically needed public safety communications facilities in the New York City metropolitan area.

Respectfully submitted,



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<sup>12</sup> Comments of Mountain Broadcasting Corporation at 5.

# **SUPPLEMENTAL ENGINEERING STUDY FOR REPLY COMMENTS**

## **1. Engineering Statement**

The State of New York (“State”) hereby submits additional engineering study results as part of its reply to comments posted for WT Docket No. 06-18. These results pertain to television broadcasters WFUT and WMBC, each transmitting on an analog adjacent channel to the proposed New York Statewide Wireless Network (“SWN”) 700-MHz public safety land mobile radio system.

The simulation processes for evaluating interference potential by fixed base stations and randomly roaming mobile units were previously described in detail in *90.545 Engineering Study Downstate New York 700-MHz Public Safety Operations*.<sup>1</sup> Further engineering study results using Commission prescribed setup parameters were submitted as a Supplement on March 13, 2006.<sup>2</sup>

This Supplement provides more analyses conducted using preferences of the broadcasters. The outcomes of the many analyses continue to demonstrate that the proposed Downstate New York 700 MHz public safety land mobile radio operations have minimal interference potential to over-the-air analog television reception.

## **2. Mobile Unit Potential Interference Study for WFUT**

### **2.1 Background**

This interference situation analyzes undesired signal strengths (transmitted in analog TV channel 69 spectrum) from randomly (in time and space) roaming mobile units inside the Grade B service areas of an adjacent channel 68 analog broadcaster. The broadcaster, WFUT, has authorized station facilities at two locations.

Determination of those 3-arc second (latitude x longitude) cells inside the Grade B contour that receive television service is made using Longley-Rice v1.2.2 propagation model with F(50,50,50) time, location and situation (in that order for function F) variability and Land Use Land Cover (LULC) loss factors. LULC data is obtained from Table 3 in OET Bulletin No. 72.<sup>3</sup> The UHF field strength defining the Grade B service threshold (66 dBμV/m in this case) is given in Table 1 in OET Bulletin No. 69.<sup>4</sup> The desired reception level to be protected (D) is made using Longley-Rice v1.2.2 with F(90,50,90) variability with no LULC loss applied. The minimum value for F(90,50,90) is 53 dBμV/m; in other words, any calculated D value that is less than 53 dBμV/m is artificially set to 53 dBμV/m at the FCC’s behest.<sup>5</sup> The Longley-Rice v1.2.2 model setup parameters and their values are given in Table 1.

**Table 1, Longley-Rice Methodology Parameters for WFUT Analyses**

Set-up Parameter Description	Value
Frequency; MHz	795.250
Ground relative permittivity	15.0
Ground conductivity; S/m	0.005
Effective earth radius	1.333
Climate classification	Continental Temperate
AGL height of receiving antenna; m	9.1
Terrain elevation data resolution; sec	3
LULC data resolution, sec	3

The undesired signal strength (U) is computed using the free-space path loss model with no viewer antenna directivity or cross polarization loss factors included. The mobile unit is modeled with 30 W ERP<sub>t</sub> at 803.000 MHz (9 MHz above the lowest edge of TV channel 68) carrier frequency.

The D/U protection criteria are obtained by bilinear interpolation of OET TM87-1, Figure 4<sup>6</sup> at an offset frequency of 9 MHz. The outcome is a computerized lookup table of interference levels, desired signal levels, and the corresponding D/U criteria. Look up data is listed in Table 2 below at 5 dB resolution for the desired signal level; the automated data base has much finer resolution.

**Table 2, Interpolated D/U Ratios at 9 MHz Offset (OET TM87-1, Figure 4)**

Desired Signal (dBm)	Undesired Level (dBm)	Protection Ratio (dB)
-15	-14	-1.0
-20	-15.7	-4.3
-25	-17.5	-7.5
-30	-19.2	-10.8
-35	-21	-14
-40	-23	-17
-45	-25	-20
-50	-27	-23
-55	-29	-26

The population count for each study area is obtained from U.S. Census Bureau Year 2000 census block data. Census block data are mapped onto the 3-arc second dimensions of the propagation study cells.

Next, we present a hand-worked example of calculations illustrating the interference potential from two randomly roaming mobiles that happen to key their

microphone at precisely the same time in a real world 3-arc second cell receiving WFUT channel 68 programming.

### Example

Consider the cell centered at 74.3042° W longitude, 40.2533° N latitude. The Longley-Rice F(90,50,90) propagation model predicts the Desired received signal level, including appropriate gains resulting from the horizontal and vertical broadcast antenna radiation patterns, on a receiving antenna at 9.1 m elevation above ground level to be

$$D = -55.0095 \text{ dBm.}$$

Suppose that the study process randomly places two mobile units, one at 200 m from the center of the receiving cell and one at 600 m from the receiving cell center. The Undesired signal level as a function of distance due to one mobile transmitter at the receiving antenna is given by

$$U[d] = \text{EIRP of mobile (dBm)} + G_r \text{ (dBi)} - \text{Free Space Loss}[d].$$

Where  $G_r \text{ (dBi)}$  is the gain of the receiver over an isotropic antenna, so  $G_r \text{ (dBi)} = G_r \text{ (dBd)} + 2.15 \text{ dB}$  because the receive antenna is assumed to be a dipole. Noting that  $\text{EIRP (dBm)} = \text{ERP (dBm)} + 2.15 \text{ dB}$ , we have

$$U[d] = \text{ERP of mobile (dBm)} + G_r \text{ (dBd)} + 4.30 \text{ dB} - \text{Free Space Loss}[d].$$

With  $G_r \text{ (dBd)}$  being the gain of the receiver over a dipole, so that  $G_r \text{ (dBd)} = 0$ , the equation simplifies to

$$U[d] = \text{ERP of mobile (dBm)} + 4.3 \text{ dB} - \text{Free Space Loss}[d]$$

$$U[d] = 10 \cdot \log_{10}(30/0.001) + 4.3 \text{ dB} - \text{Free Space Loss}[d]$$

$$U[d] = 49.0712 \text{ dBm} - \text{Free Space Loss}[d].$$

Plugging in the values for d, we obtain

$$\text{Free Space Loss [200 m]} = -20 \cdot \log_{10}(\lambda / 4\pi d) = 76.5627 \text{ dB}$$

$$\text{where } \lambda = 3 \times 10^8 \text{ m/s} / 803 \times 10^6 \text{ Hz} = 0.3733 \text{ m.}$$

$$\text{Likewise, Free Space Loss [600 m]} = 86.1051 \text{ dB.}$$

This yields

$$U[200 \text{ m}] = 49.0712 \text{ dBm} - 76.5627 \text{ dB} = -27.4915 \text{ dBm, and}$$

$$U[600 \text{ m}] = 49.0712 \text{ dBm} - 86.1051 \text{ dB} = -37.0339 \text{ dBm.}$$

Converting each to absolute power for summing gives

$$U_{\text{total}} [\text{mW}] = 10^{(-27.4915 \text{ dBm}/10)} + 10^{(-37.0339 \text{ dBm}/10)} = 0.001979 \text{ mW}, \text{ or}$$

$$U_{\text{total}} [\text{dBm}] = 10 \cdot \log_{10}(0.001979 \text{ mW}) = -27.0339 \text{ dBm}.$$

Finally, the cell's computed D/U ratio is

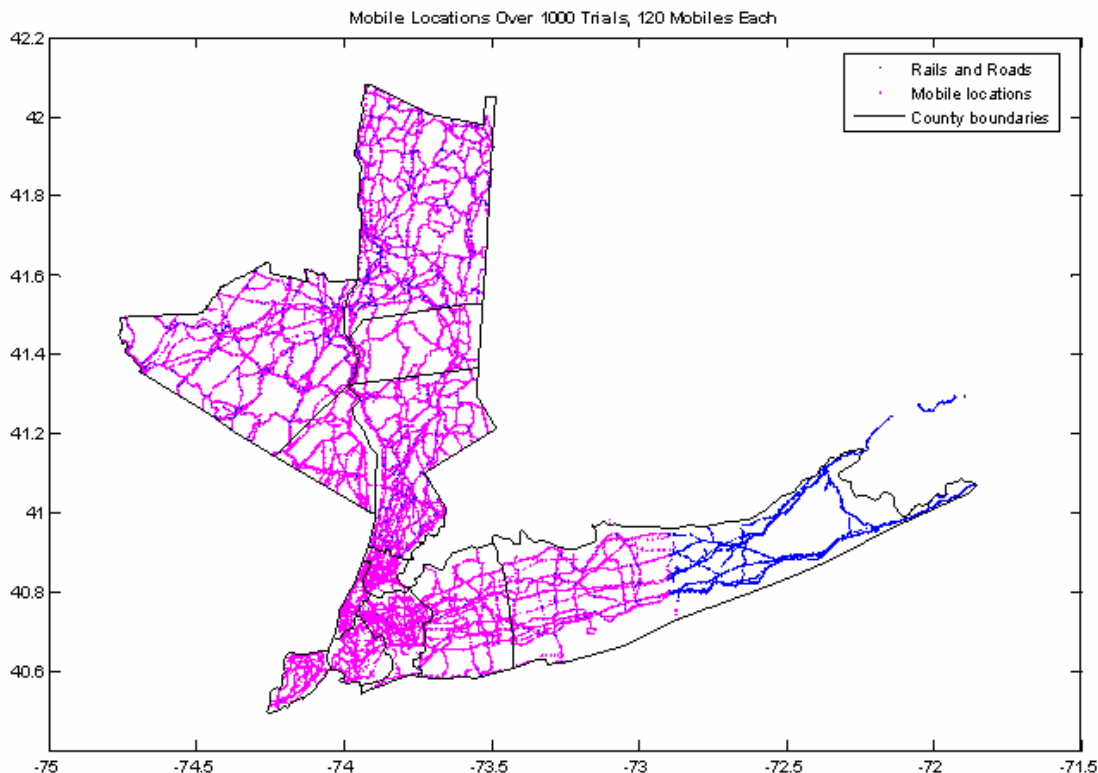
$$D/U = D [\text{dBm}] - U [\text{dBm}] = -55.0095 \text{ dBm} - (-27.0339 \text{ dBm}) = -27.9756 \text{ dB}.$$

According to the bilinear interpolation of OET TM87-1 as described, the Protection ratio when  $D = -55 \text{ dBm}$  is  $-26 \text{ dB}$ , the minimum protection ratio afforded. The cell's computed D/U does not meet this ratio, so this cell fails the interference test. In this particular case, the first mobile alone, resulting in  $U = -27.4915 \text{ dBm}$ , would have caused the cell to fail the D to U test.

The total population contained within this cell is 36 people. The serviced Grade B population is 15,923,730 people, so if this cell were the only cell to fail its D/U protection test, then the interference population would be 0.0002260 %.

**End**

The pre-2009 deployment of mobile and portable units will have a total quantity much less than the full SWN and have an asymmetrical distribution that finds the unit operating around the downstate transportation corridors. The corridors consist of primary and secondary roads plus railways from the 2000 Census Tiger mapping data. The initial Engineering Study<sup>1</sup> addressed a full SWN deployment that modeled uniform distribution across county areas. Figure 1 illustrates the downstate transportation corridors wherein the number of simultaneous transmitting mobile units is 10 per each of the 12 counties for the interference protection analyses.



**Figure 1, Downstate Transportation Corridors**

## 2.2 Analysis Pertaining to WFUT Station File BPCT-20030805AIL

The station technical parameters, from the FCC Media Bureau Video Division public records files dated March 21, 2006, are given in Table 3.

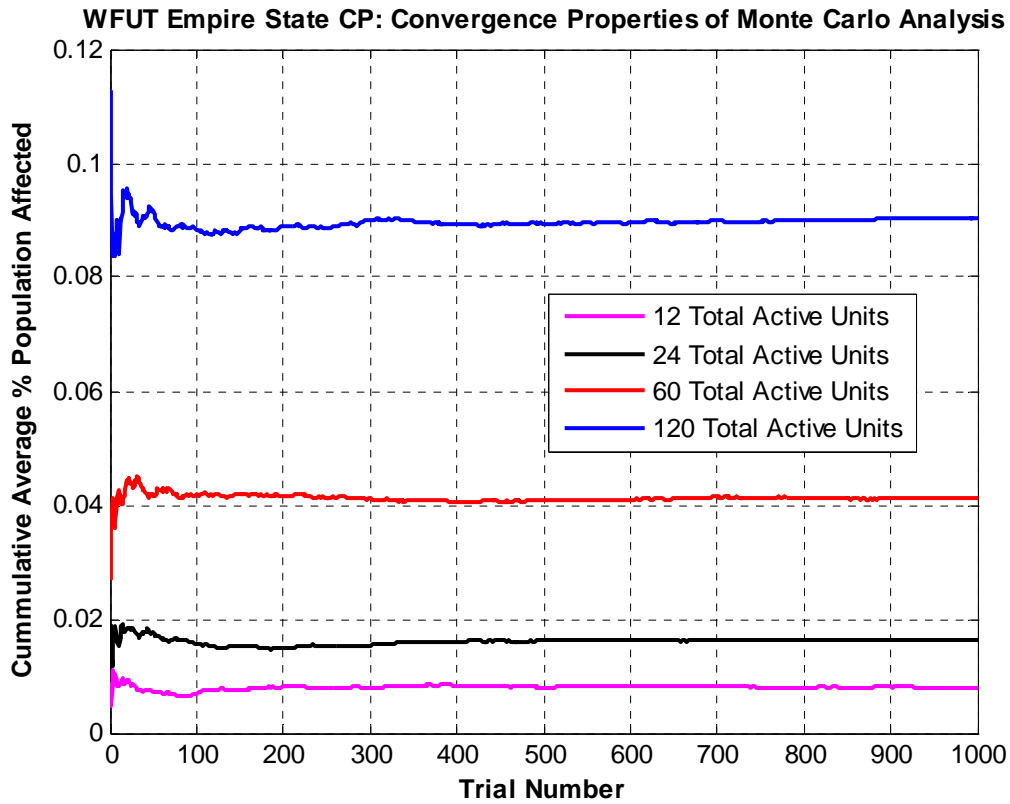
**Table 3, Station File BPCT-20030805AIL Technical Parameters**

Call Sign	Channel	Latitude NAD 27	Longitude NAD 27	ERP (kW)	Ant_AMSL (m)
WFUT	68 NTSC	40-44-54N	73-59-10W	2630	437.3

Antenna pattern data for Andrew elliptically polarized, directional antenna ATW24H5-ESTX-68H containing 1.25° electrical down tilt is obtained from Media Bureau, Video Division files displaying WFUT application for a TV construction permit. To this data, an additional 0.5° mechanical down tilt is added at 80° True North azimuth.

The processes to for evaluating interference protection are found in *90.545 Engineering Study Downstate New York 700-MHz Public Safety Operations*.<sup>1</sup> The

numerical results are in given Tables 4 and 5. The convergence properties are shown in Figure 2.



**Figure 2, WFUT BPCT-20030805AIL - Monte Carlo Trials Convergence**

**Table 4, WFUT BPCT-20030805AIL - Monte Carlo Trials of Multiple Mobile Units**

Total Active Mobile Units	Number of Trials	Transportation Corridor Mean Affected Population (%)
12	1000	0.009
24	1000	0.017
60	1000	0.044
120	1000	0.098

**Table 5, WFUT BPCT-20030805AIL – Affected Population Results**

Grade B Service Population	Interference Population	% Affected Population
15,923,730	15,565	0.098

### 2.3 Analysis Pertaining to WFUT Station File BXPCT-20031216ADS

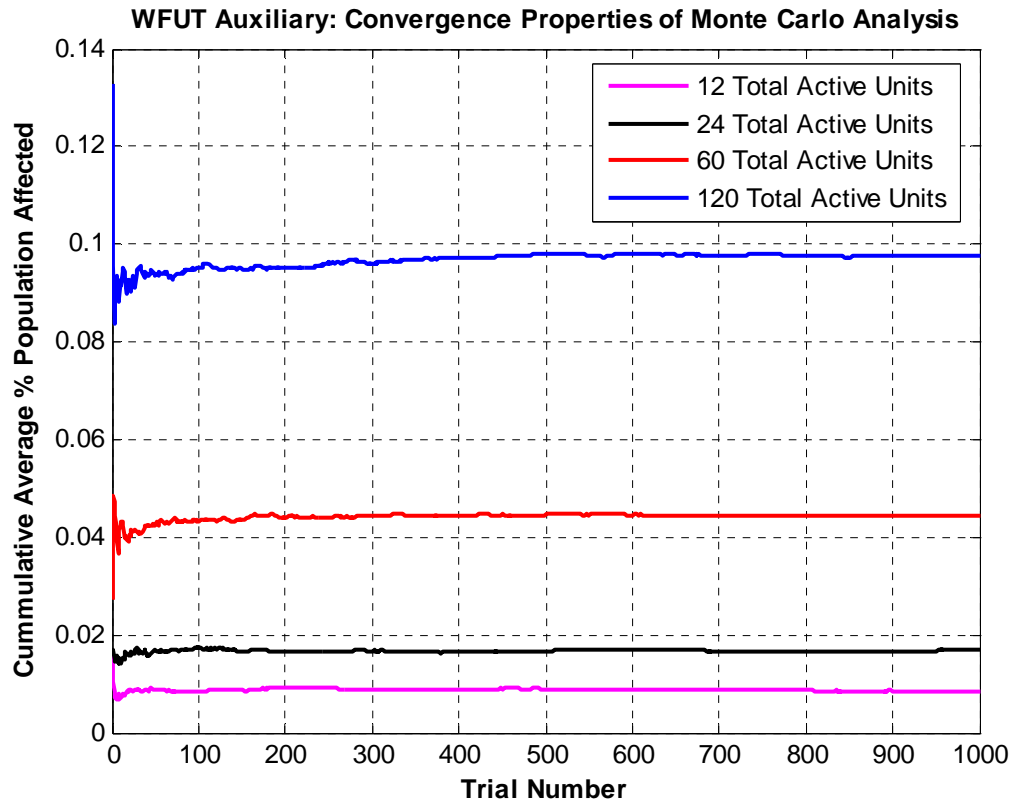
The station technical parameters, from the FCC Media Bureau Video Division public records files dated March 21, 2006, are given in Table 6.

**Table 6, Station File BXPCT-20031216ADS Technical Parameters**

Call Sign	Channel	Latitude NAD 27	Longitude NAD 27	ERP (kW)	Ant_AMSL (m)
WFUT	68 NTSC	40-45-22N	73-59-12W	3000	351

Antenna radiation pattern data for Andrew horizontally polarized, directional antenna ATW26HS5-HTTX-68H containing 1.25° electrical down tilt is obtained from Media Bureau, Video Division files displaying WFUT application for an auxiliary antenna NTSC station. To this data, an additional 0.5° mechanical down tilt is added at 80° True North azimuth.

The processes to for evaluating interference protection are found in *90.545 Engineering Study Downstate New York 700-MHz Public Safety Operations*.<sup>1</sup> The numerical results are given in Tables 7 and 8. The convergence properties are shown in Figure 3.



**Figure 3, WFUT BXPCT-20031216ADS - Monte Carlo Trials Convergence**

**Table 7, WFUT BXPCT-20031216ADS - Monte Carlo Trials of Multiple Mobile Units**

Total Active Mobile Units	Number of Trials	Transportation Corridor Mean Affected Population (%)
12	1000	0.008
24	1000	0.016
60	1000	0.041
120	1000	0.090

**Table 8, WFUT BXPCT-20031216ADS – Affected Population Results**

Grade B Service Population	Interference Population	% Affected Population
16,263,645	14,704	0.090

### 3. Fixed Base Station Potential Interference Study for WMBC

#### 3.1 Background

This interference situation analyzes undesired signal strengths (transmitting in analog TV channel 64 spectrum) from proposed fixed base stations into the Grade B service area of an adjacent channel 63 analog broadcaster. The broadcaster, WMBC, has authorized station facilities at one location.

Determination of those 3-arc second (latitude x longitude) cells inside the Grade B contour that receive television service is made using Longley-Rice v1.2.2 propagation model with F(50,50,50) time, location and situation (in that order for function F) variability and Land Use Land Cover (LULC) loss factors. LULC data is obtained from Table 3 in OET Bulletin No. 72.<sup>3</sup> The UHF field strength defining the Grade B service threshold is given in Table 1 in OET Bulletin No. 69.<sup>4</sup> The desired reception level to be protected (D) is made using Longley-Rice v1.2.2 with F(90,50,90) variability with no LULC loss applied. The minimum value for F(90,50,90) is 53 dB $\mu$ V/m; in other words, any calculated D value that is less than 53 dB $\mu$ V/m is artificially set to 53 dB $\mu$ V/m. The Longley-Rice v1.2.2 model set-up parameters and their values are given in Table 9.

**Table 9, Longley-Rice Methodology Parameters for WMBC Analyses**

<b>Set-up Parameter Description</b>	<b>Value</b>
Frequency; MHz	765.250
Ground relative permittivity	15.0
Ground conductivity; S/m	0.005
Effective earth radius	1.333
Climate classification	Continental Temperate
AGL height of receiving antenna; m	9.1
Terrain elevation data resolution; sec	3
LULC data resolution, sec	1

The undesired signal strength (U) is computed using the Longley-Rice v1.2.2 propagation model. The Longley-Rice set-up parameters and their values are those given in Table 9 except the base station frequency 773.000 MHz and F(50,50,50) variability. No antenna directivity is used at the TV receiver set, however 10 dB of antenna cross polarization is used to complete the interference situation model. Non-coherent power summation at each cell is performed for all 76 base stations identified in the original Engineering Study.<sup>1</sup> Each base station that needed to be included in the interference analysis per the several tests of the FCC rules, whether physically located inside or outside the Grade B service area, has its transmitted power aggregated with all other such stations.

The D/U protection criteria are obtained by bilinear interpolation of OET TM87-1, Figure 4<sup>6</sup> at an offset frequency of 9 MHz. These values are found in Table 2 above.

The population count for each study area is obtained from U.S. Census Bureau Year 2000 census block data. Census block data are mapped onto the 3-arc second dimensions of the propagation study cells.

### 3.2 Analysis Pertaining to WMBC Station File BMLCT-20011016AAQ

The station technical parameters from the FCC Media Bureau Video Division public records files dated March 21, 2006 are in Table 10.

**Table 10, Station File BMLCT-20011016AAQ Technical Parameters**

Call Sign	Channel	Latitude NAD 27	Longitude NAD 27	ERP (kW)	Ant_AMSL (m)
WMBC	63 NTSC	41-00-35N	74-35-39W	2190	485

Antenna pattern data for Andrew horizontally polarized, omni-directional antenna ALP32H3-HSOC-63 containing 0.75° electrical down tilt was provided by WMBC from their archives.

The processes to for evaluating interference protection are found in *90.545 Engineering Study Downstate New York 700-MHz Public Safety Operations*.<sup>1</sup> The numerical results are given in Table 11 for two interference study cases.

**Table 11, WMBC BMLCT-20011016AAQ – Affected Population Results**

Study Case	Grade B Service Population	Interference Population	% Affected Population
#1	4,427,067	10,233	0.231
#2	4,427,067	4,444	0.100

Case 1 shows the results for the aggregate power of all 76 proposed base stations requiring a study. We observed that proposed base station Site ID #72 had a high potential for interference because of its location within a very densely populated area. For Case 2, we conducted the analysis without Site ID #72; in practical terms the station would be built but be required to operate in the 800 MHz bands until February 2009. The reduction in interference potential by this one station is dramatic.

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<sup>1,2</sup> See WT Docket No. 06-18, *Wireless Telecommunications Bureau Seeks Comment on Request for Waiver of Television Interference Rules by the State of New York to Implement a 700 MHz Public Safety Communications System*, January 26, 2006.

<sup>3</sup> See OET Bulletin No. 72, *The ILLR Computer Program*, July 2, 2002.

<sup>4</sup> See OET Bulletin No. 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, February 06, 2004.

<sup>5</sup> The condition where D would be raised to 53 dB $\mu$ V/m never occurred in the mobile unit studies. All reception serviced cells with a non-zero population had D naturally greater than 53 dB $\mu$ V/m.

<sup>6</sup> See Daniel J. Stanks, *Receiver Susceptibility Measurements Relating to Interference Between UHF Television and Land Mobile Radio Services*, FCC Report FCC/OET TM87-1, April 1986.